



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,070	01/22/2004	Jean-Luc Morand	S1022.81118US00	3710
23628	7590	05/17/2005	EXAMINER	
WOLF GREENFIELD & SACKS, PC FEDERAL RESERVE PLAZA 600 ATLANTIC AVENUE BOSTON, MA 02210-2211			NGUYEN, THINH T	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/763,070	Applicant(s) MORAND, JEAN-LUC	
	Examiner Thinh T. Nguyen	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-9 is/are rejected.
- 7) ☐ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED OFFICE ACTION

Specification

1. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

Drawings

2. fig 1A, fig 1B, Fig 2 are not designated by a legend such as "prior art". The legend is necessary in order to clarify what applicant's invention is (see MPEP paragraph 608.02).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b/e) that form the basis for the rejections under this section made in this office action.

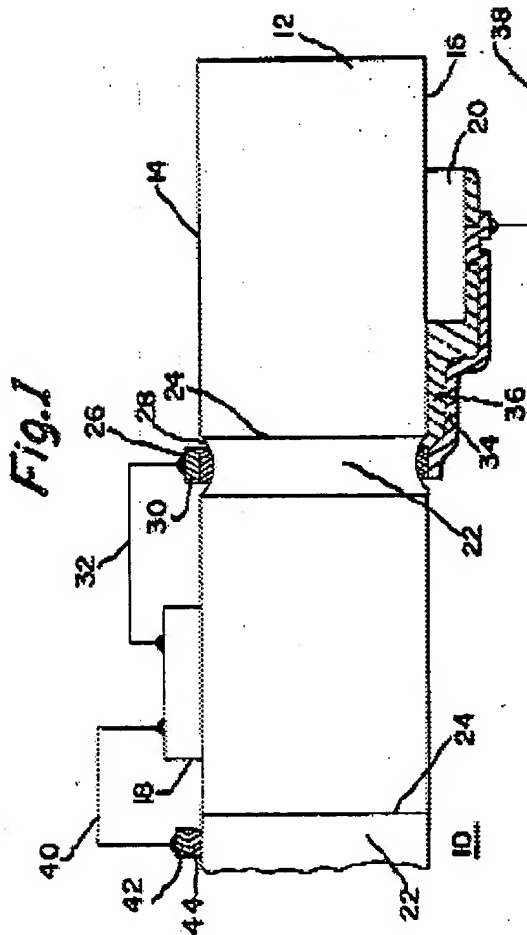
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

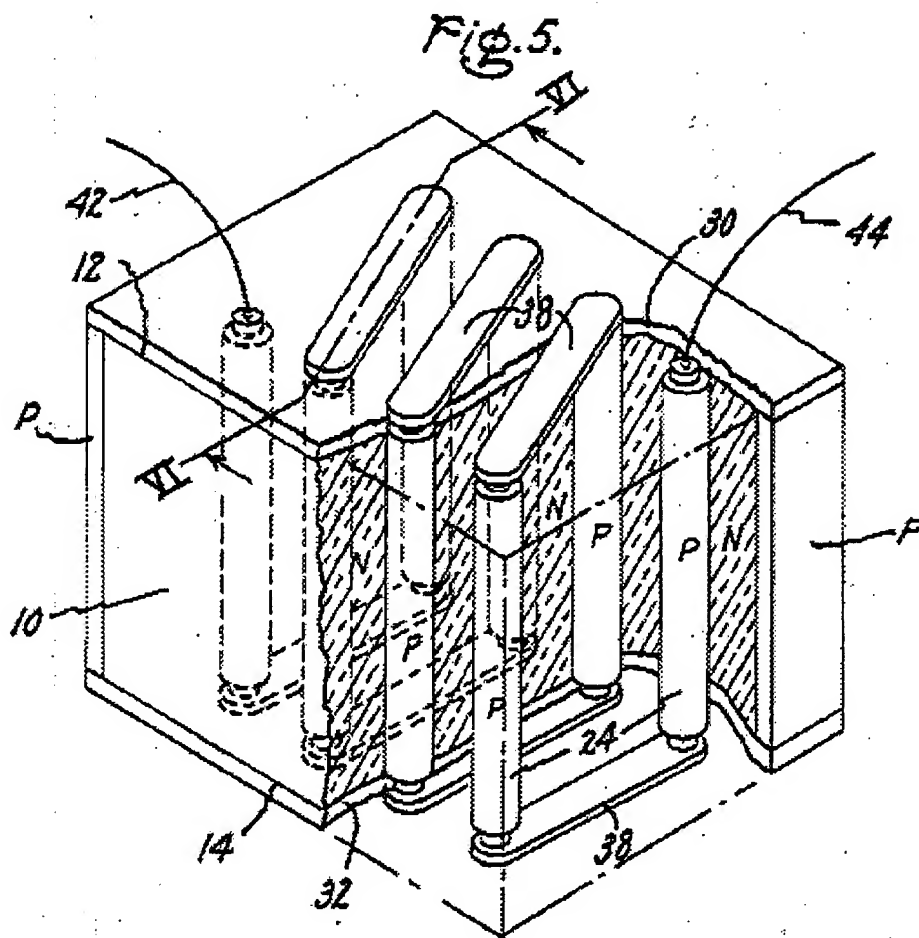
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 1,2,3, are rejected under 35 U.S.C. 102(b) as being anticipated by Anthony et al. (US patent 3,979,820) or Clines et al. (US patent 3,988,764) provided in Applicants' IDS

REGARDING CLAIM 1

Anthony et al. (fig 1,the title, the abstract,), disclose a semiconductor component in which the active junctions extend perpendicularly to the surface of a semiconductor chip substantially across an entire thickness thereof. Similarly, Cline et al. disclose (fig 5) The same invention.





REGARDING CLAIM 2

Anthony et al. (fig 1,the title, the abstract,), disclose a semiconductor component of wherein the contacts with the regions to be connected are provided by conductive fingers substantially crossing an entire region with which a contact is desired to be established.

Similarly, Cline et al. disclose (fig 5) he same invention.

REGARDING CLAIM 3

Anthony et al. (fig 1, the title, the abstract, column 2 line 51-56), wherein the conductive fingers are metal fingers.

Similarly, Cline et al. disclose (fig 5) the same invention.

6. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Rouse et al. (US patent 3,128,530)

REGARDING CLAIM 4

Rouse (fig 3) discloses a semiconductor component of multi-cellular type, wherein the junctions are formed of several cylinders perpendicular to the main substrate surfaces.

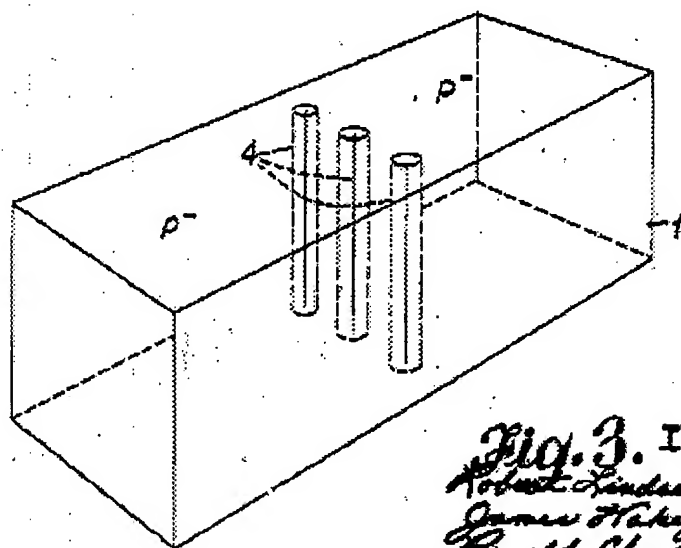


Fig. 3. INVENTORS
Robert Lindsay Rouse
James Wakefield
Ronald Charles Newman

REGARDING CLAIM 5

Rouse (fig 5) discloses a diode comprising an alternation of regions of a first conductivity type and of a second conductivity type extending across the entire substrate thickness, the regions of a first type being crossed by conductive fingers connected to a metallization extending over an entire surface of the substrate, and the regions of the

Art Unit: 2818

second type being crossed by conductive fingers connected to a metallization on the other substrate surface.

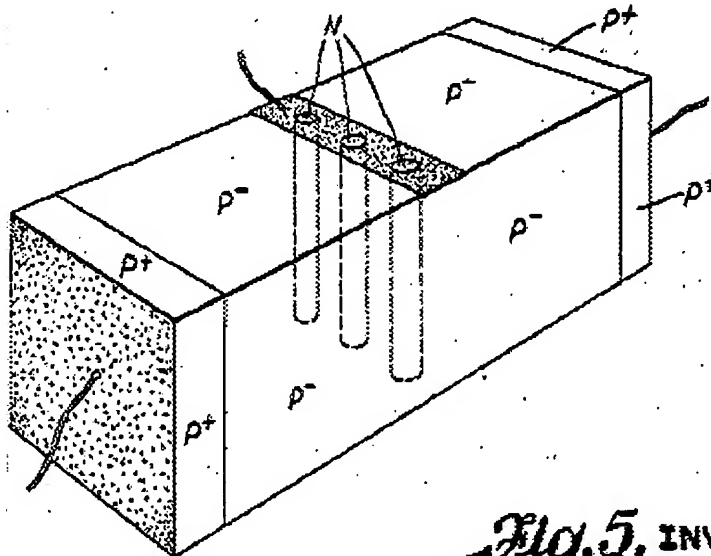


Fig. 5. INVENTORS
Robert Lindsay Rose
James Wakefield
Ronald Charles Newman
BY
Larson and Taylor

Claim Rejections - 35 USC § 103

7. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rouse (US patent 3,128,530) in view of Kobayashi et al. (US patent 3,925,803).

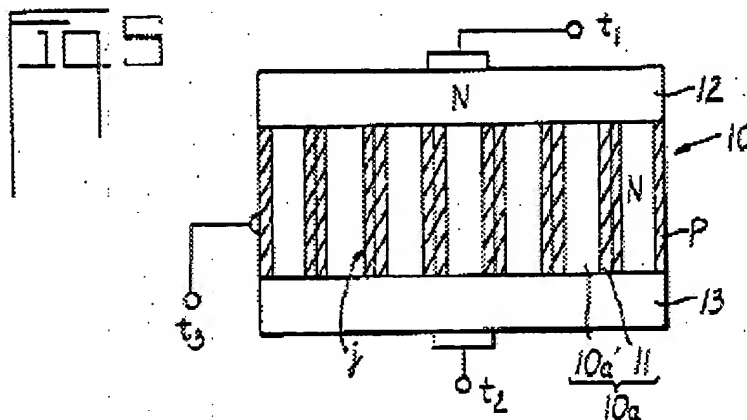
REGARDING CLAIM 5

Rouse (fig 5,claim 2) disclose all the invention including a transistor device (see claim 2) except for the use of conductive fingers on all three transistor terminals. Kobayashi et al., (fig. 5), however teach how to connect conductive fingers to a three terminal devices.

It would have been obvious to one ordinary skill in the art to complement the teachings by Rouse with the teachings by Kobayashi et al. and come up with the invention of claim 7.

The rationale is as the following:

A person skilled in the art would have been motivated to improve the semiconductor device as suggested by Kobayashi in column 1 lines 32-36.



8. Claims 8,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krishna (US patent 3,988,771) in view of Kobayashi et al. (US patent 3,925,803).

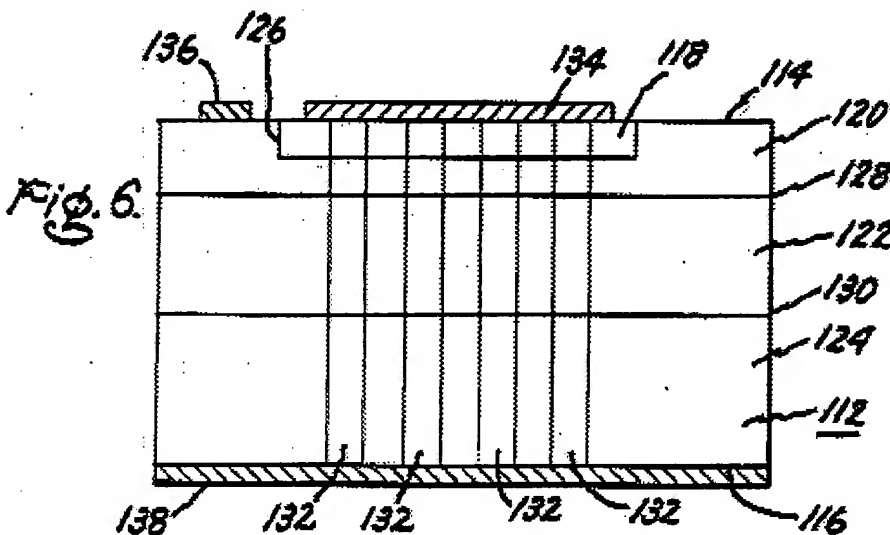
REGARDING CLAIM 8,9

Krishna (fig 6) disclose all the invention including a thyristor device (column 1 line 14) except for the use of conductive fingers on all three thyristor terminals. Kobayashi et al., (fig. 5), however teach how to connect conductive fingers to a three terminal devices.

It would have been obvious to one ordinary skill in the art to complement the teachings by Khrisna with the teachings by Kobayashi et al. and come up with the invention of claim 8,9.

The rationale is as the following:

A person skilled in the art would have been motivated to improve the semiconductor device as suggested by Kobayashi in column 1 lines 32-36.



ALLOWABLE SUBJECT MATTER

8. Claims 6 is objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim.

Claim 6 is considered allowable since the prior fails to teach the limitation wherein the conductive fingers penetrating into the N-type regions are surrounded with heavily doped N-type regions.

9. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

10. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

11. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d) which papers have been placed of record in the file.

CONCLUSION

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790. The examiner can normally be reached on Monday-Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787.

Application/Control Number: 10/763,070
Art Unit: 2818

Page 10


The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Thinh T. Nguyen

TTN

Art Unit 2818


David Neims
Supervisory Patent Examiner
Technology Center 2800